# NEUROSCIENCE

An International Journal under the editorial direction of IBRO

Volume 52, 1993

TITLE SECTION
LIST OF CONTENTS
AND AUTHOR INDEX

PERGAMON PRESS
OXFORD · NEW YORK · SEOUL · TOKYO

# NEUROSCIENCE

*Chief Editors*

P. G. KOSTYUK: *Department of General Physiology, A. A. Bogomoletz Institute of Physiology, Academy of Sciences, 4 Bogomoletz Street, Kiev 24, 252601 GSP, Ukraine*

R. LLINÁS: *Department of Physiology and Biophysics, New York University School of Medicine, 550 First Avenue, New York 10016, U.S.A.*

A. D. SMITH: *Department of Pharmacology, University of Oxford, Mansfield Road, Oxford OX1 3QT, U.K.*



*Editorial Board*

G. ASTON-JONES (*Philadelphia, PA*)
A. BJÖRKLUND (*Lund*)
J. P. BOLAM (*Oxford*)
A. G. BROWN (*Edinburgh*)
M. C. BROWN (*Oxford*)
J. BUREŠ (*Prague*)
R. E. BURKE (*Bethesda, MD*)
G. BUZSÁKI (*Newark, NJ*)
A. L. BYSOV (*Moscow*)
D. W. CHOI (*St Louis, MO*)
A. CONSTANTI (*London*)
M. COSTA (*Adelaide*)
J. T. COYLE (*Belmont, MA*)
W. CRILL (*Seattle, WA*)
A. C. CUELLO (*Montreal*)
A. C. DOLPHIN (*London*)
F. E. DUDEK (*Fort Collins, CO*)
S. B. DUNNETT (*Cambridge*)
D. EDGAR (*Liverpool*)
M. M. ESIRI (*Oxford*)
R. H. EVANS (*Bristol*)
D. S. FABER (*Philadelphia, PA*)
V. V. FANARDJIAN (*Yerevan*)
R. L. M. FAULL (*Auckland*)
R. FISCHER-COLBRIE (*Innsbruck*)
T. F. FREUND (*Budapest*)
G. GABELLA (*London*)
J. GARTHWAITE (*Beckenham*)
H. M. GERSCHENFELD (*Paris*)
J. GLOWINSKI (*Paris*)
J. A. GRAY (*London*)
A. M. GRAYBIEL (*Cambridge, MA*)
R. W. GUILLERY (*Oxford*)
L. HEIMER (*Charlottesville, VA*)
Z. HENDERSON (*Leeds*)
M. HERKENHAM (*Bethesda, MD*)
D. E. HILLMAN (*New York, NY*)
T. HÖKFELT (*Stockholm*)
E. HOLTZMAN (*New York, NY*)
P. HOLZER (*Graz*)
O. HORNYKIEWICZ (*Vienna*)
J. HOUNSGAARD (*Copenhagen*)
S. P. HUNT (*Cambridge*)
H. JAHNSEN (*Copenhagen*)
B. E. JONES (*Montreal*)
E. G. JONES (*Irvine, CA*)
G. JU (*Xi'an*)
J. S. KELLY (*Edinburgh*)
B. I. KHODOROV (*Moscow*)
S. T. KITAI (*Memphis, TN*)
C. KÖHLER (*Basel*)
O. A. KRISHTAL (*Kiev*)
S. N. LAWSON (*Bristol*)
C. A. MARSDEN (*Nottingham*)
M. R. MATTHEWS (*Oxford*)
A. I. MATUS (*Basle*)
R. Y. MOORE (*Pittsburgh, PA*)
D. K. MOREST (*Farmington, CT*)
J. F. MORRIS (*Oxford*)
É. MUGNAINI (*Storrs, CT*)
W. J. H. NAUTA (*Cambridge, MA*)
T. ONO (*Toyama*)
F. ORREGO (*Santiago*)
J. M. PALACIOS (*Barcelona*)
S. L. PALAY (*Concord, MA*)
V. H. PERRY (*Oxford*)
J. M. POLAK (*London*)
P. RAKIC (*New Haven, CA*)
H. J. RALSTON (*San Francisco, CA*)
S. J. REDMAN (*Canberra*)
T. S. REESE (*Bethesda, MD*)
F. REINOSO-SUÁREZ (*Madrid*)
L. P. RENAUD (*Ottawa*)
M. RÉTHELYI (*Budapest*)
P. J. ROBERTS (*Southampton*)
S. M. SHERMAN (*Stony Brook, NY*)
M. L. SHIK (*Moscow*)
M. V. SOFRONIEW (*Cambridge*)
P. SOMOGYI (*Oxford*)
C. SOTELO (*Paris*)
K. STARKE (*Freiburg*)
M. S. STARR (*London*)
M. STERIADE (*Québec*)
L. STJÄRNE (*Stockholm*)
K. SUZUKI (*Chapel Hill, NC*)
D. T. THEODOSIS (*Bordeaux*)
A. M. THOMSON (*London*)
J. VOOGD (*Rotterdam*)
L. VYKLICKY (*Prague*)
K. D. WALTON (*New York, NY*)
X. S. T. WAN (*Beijing*)
S. P. WATSON (*Oxford*)
K. WICTORIN (*Lund*)
W. D. WILLIS (*Galveston, TX*)
H. WINKLER (*Innsbruck*)
D. J. WOODWARD (*Winston-Salem, NC*)
H. ZIMMERMANN (*Frankfurt*)
C. ZUCKER (*Boston, MA*)

*IBRO Publications Committee*

*Chairman*, A. D. SMITH; C. BLAKEMORE, R. LLINÁS, D. G. R. OTTOSON, D. P. PURPURA, P. G. STRATA.


**Aims and Scope:**
*Neuroscience* publishes papers describing the results of original research on any aspect of the scientific study of the nervous system. Since one of the chief aims of the Journal is to promote communication between neuroscientists, the type of paper most suitable for publication is that in which new observations are clearly and succinctly reported and in which the purpose of the study is made meaningful to scientists of other disciplines. Any paper, however short, will be considered for publication provided that it reports significant, new and carefully confirmed findings with full experimental details. For *Instructions to Authors* see Vol. 52, No. 1, pp. v–viii.


*Production Editors*: M. DAVIES, T. J. FISHER. *Editorial Assistants*: S. J. RUSSELL (U.K.), S. DUKE (U.S.).

*Published 24 per annum, two per month (six volumes, 1993)*

*Publishing, Subscription and Advertising Offices:*

*Headington Hill Hall, Oxford OX3 0BW [Tel*: (0865) 794141; *Fax*: (0865) 60285]

*Subscription Rates*

*Annual institutional subscription rate* (1993): £1850.00 (*U.S.* $3515.00). *Sterling prices are definitive. U.S. dollar prices are quoted for convenience only, and are subject to exchange rate fluctuation. Prices include postage and insurance and are subject to change without notice. Subscription rates for Japan are available on request. Members of the International Brain Research Organization may order personal subscriptions at a concessional rate and details of these rates are available on request. Airmail Subscription extra. Subscription enquiries from customers in North America should be sent to: Pergamon Press Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, U.S.A., and for the remainder of the world to: Pergamon Press Ltd, Headington Hill Hall, Oxford OX3 0BW, U.K. Tel*: (0865) 794141; *Fax*: (0865) 60285.



**Disclaimer.** Whilst every effort is made by the Publishers and Editorial Board to see that no inaccurate or misleading data, opinion or statement appear in this Journal, they wish to make it clear that the data and opinions appearing in the articles and advertisements herein are the sole responsibility of the contributor or advertiser concerned. Accordingly, the Publishers, the Editorial Board and Editors and their respective employees, officers and agents accept no responsibility or liability whatsoever for the consequences of any such inaccurate or misleading data, opinion or statement.



Second class postage paid at RAHWAY, NJ, and additional Mailing Offices. Postmaster send address corrections to *Neuroscience*, c/o Pergamon Press Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, U.S.A.



Copyright © 1993 IBRO


**Front cover illustration:** Section of a nerve in the spinal cord of the ox, reproduced by permission of the Bodleian Library, Oxford from Antoni van Leeuwenhoek, *Epistolae physiologicae super compluribus naturae arcanis*, Figure 2 facing page 312. A. Beman, Delft, 1719.

# LIST OF CONTENTS

VOLUME 52 NUMBER 1 1993


| | | |
|---|---|---|
| | Instructions to Authors | v |
| **P. Damier, E. C. Hirsch, P. Zhang, Y. Agid** and **F. Javoy-Agid** | Glutathione peroxidase, glial cells and Parkinson's disease | 1 |
| **R. D. Smith, Z. Zhang, R. Kurlan, M. McDermott** and **D. M. Gash** | Developing a stable bilateral model of parkinsonism in rhesus monkeys | 7 |
| **W. P. J. M. Spooren, W. H. A. M. Mulders, J. G. Veening** and **A. R. Cools** | The substantia innominata complex and the peripeduncular nucleus in orofacial dyskinesia: a pharmacological and anatomical study in cats | 17 |
| **A. Parducz** and **Y. Dunant** | Transient increase of calcium in synaptic vesicles after stimulation | 27 |
| **L. L. Thio, D. B. Clifford** and **C. F. Zorumski** | Blockade of ionotropic quisqualate receptor desensitization in rat hippocampal neurons by wheatgerm agglutinin and other lectins | 35 |
| **W. F. Agnew, D. B. McCreery, T. G. H. Yuen** and **L. A. Bullara** | MK-801 protects against neuronal injury induced by electrical stimulation | 45 |
| **H. Komuro, Y. Momose-Sato, T. Sakai, A. Hirota** and **K. Kamino** | Optical monitoring of early appearance of spontaneous membrane potential changes in the embryonic chick medulla oblongata using a voltage-sensitive dye | 55 |
| **C. Gambarana, C. J. Loria** and **R. E. Siegel** | $GABA_A$ receptor messenger RNA expression in the deep cerebellar nuclei of Purkinje cell degeneration mutants is maintained following the loss of innervating Purkinje neurons | 63 |
| **C. Knott, J. J. Maguire, R. Moratalla** and **N. G. Bowery** | Regional effects of pertussis toxin *in vivo* and *in vitro* on $GABA_B$ receptor binding in rat brain | 73 |
| **C. A. Lewis** and **D. S. Faber** | GABA responses and their partial occlusion by glycine in cultured rat medullary neurons | 83 |
| **A. J. McDonald, D. R. Payne** and **F. Mascagni** | Identification of putative nitric oxide producing neurons in the rat amygdala using NADPH-diaphorase histochemistry | 97 |
| **D. D. Schwartz** and **K. U. Malik** | Cyclic AMP modulates but does not mediate the inhibition of [$^3$H]norepinephrine release by activation of alpha-2 adrenergic receptors in cultured rat ganglion cells | 107 |
| **H. Baker** and **A. I. Farbman** | Olfactory afferent regulation of the dopamine phenotype in the fetal rat olfactory system | 115 |
| **G. J. Kirouac** and **P. K. Ganguly** | Up-regulation of dopamine receptors in the brain of the spontaneously hypertensive rat: an autoradiographic analysis | 135 |
| **J.-L. Ridet, N. Rajaofetra, J.-R. Teilhac, M. Geffard** and **A. Privat** | Evidence for nonsynaptic serotonergic and noradrenergic innervation of the rat dorsal horn and possible involvement of neuron–glia interactions | 143 |
| **O. Arancio, M. Yoshimura, K. Murase** and **A. B. MacDermott** | The distribution of excitatory amino acid receptors on acutely dissociated dorsal horn neurons from postnatal rats | 159 |

| | | |
|---|---|---|
| **H. Pollard, J. Moreau, J. M. Arrang** and **J. C. Schwartz** | A detailed autoradiographic mapping of histamine $H_3$ receptors in rat brain areas | 169 |
| **D. R. Gehlert** and **S. L. Gackenheimer** | Comparison of the distribution of binding sites for the potassium channel ligands [$^{125}$I]apamin, [$^{125}$I]charybdotoxin and [$^{125}$I]iodoglyburide in the rat brain | 191 |
| **J. Zelená** and **T. Soukup** | Increase in the number of intrafusal muscle fibres in rat muscles after neonatal motor denervation | 207 |
| **J. Kucera, J. M. Walro** and **Y. Gao** | Fusimotor-free spindles in reinnervated muscles of neonatal rats treated with nerve growth factor | 219 |
| EDITORIAL ANNOUNCEMENT | | I |


VOLUME 52 NUMBER 2 1993


| | | |
|---|---|---|
| **S. Pockett, J. R. Slack** and **S. Peacock** | Cyclic AMP and long-term potentiation in the CA1 region of rat hippocampus | 229 |
| **D. G. Herrera, D. Maysinger** and **M. Goiny** | Induction of *c*-FOS immunoreactivity in the hippocampus following potassium stimulation | 237 |
| **H. Kato, T. Araki, K. Murase** and **K. Kogure** | Alterations in [$^3$H]MK-801, [$^3$H]muscimol, [$^3$H]cyclic AMP, and [$^3$H]rolipram binding in the gerbil hippocampus following repeated ischemic insults | 245 |
| **W. J. Wadman** and **M. J. Gutnick** | Non-uniform propagation of epileptiform discharge in brain slices of rat neocortex | 255 |
| **T. P. Hicks, K. Albus, T. Kaneko** and **U. Baumfalk** | Examination of the effects of cholecystokinin 26–33 and neuropeptide Y on responses of visual cortical neurons of the cat | 263 |
| **A. J. McDonald** and **J. R. Augustine** | Localization of GABA-like immunoreactivity in the monkey amygdala | 281 |
| **D. S. Kreiss, S. Wieland** and **I. Lucki** | The presence of a serotonin uptake inhibitor alters pharmacological manipulations of serotonin release | 295 |
| **I. D. Hentall, M. J. Andresen** and **K. Taguchi** | Serotonergic, cholinergic and nociceptive inhibition or excitation of raphe magnus neurons in barbiturate-anesthetized rats | 303 |
| **A. K. Shetty, R. C. Burrows** and **D. E. Phillips** | Alterations in neuronal development in the substantia nigra pars compacta following *in utero* ethanol exposure: immunohistochemical and Golgi studies | 311 |
| **A. M. Degtyarenko, T. V. Zavadskaya** and **K. V. Baev** | Mechanisms of supraspinal correction of locomotor activity generator | 323 |
| **C. B. Jaeger, J. P. Toombs** and **R. B. Borgens** | Grafting in acute spinal cord injury: morphological and immunological aspects of transplanted adult rat enteric ganglia | 333 |
| **I. V. Melnick** and **K. V. Baev** | Glycine conductance changes in chick spinal cord neurons developing in culture | 347 |
| **E. Vanhems, M. Delbos** and **J. Girardie** | *In vitro* growth of locust embryonic pars intercerebralis neurosecretory cells | 361 |
| **D. A. Rusakov, O. L. Berezovskaya** and **G. G. Skibo** | Cytoskeleton-mediated, age-dependent lateral topography of lectin–gold-labelled molecules on the plasma membrane of cultured neurons: a statistical view | 369 |

| | | |
|---|---|---|
| **R. Takemura, S. Okabe, N. Kobayashi** and **N. Hirokawa** | Reorganization of brain spectrin (fodrin) during differentiation of PC12 cells | 381 |
| **C. Sandi, T. A. Patterson** and **S. P. R. Rose** | Visual input and lateralization of brain function in learning in the chick | 393 |
| **L. R. G. Britto** and **D. E. Hamassaki-Britto** | Different subsets of displaced ganglion cells in the pigeon retina exhibit cholecystokinin-like and enkephalin-like immunoreactivities | 403 |
| **J. P. Golding** and **D. A. Tonge** | Expression of GAP-43 in normal and regenerating nerves in the frog | 415 |
| **S. Manaker** and **P. C. Zucchi** | Effects of vagotomy on neurotransmitter receptors in the rat dorsal vagal complex | 427 |
| **F. Y. Lam** and **W. R. Ferrell** | Acute inflammation in the rat knee joint attenuates sympathetic vasoconstriction but enhances neuropeptide-mediated vasodilatation assessed by laser Doppler perfusion imaging | 443 |
| **P. G. Green, J. Luo, P. Heller** and **J. D. Levine** | Modulation of bradykinin-induced plasma extravasation in the rat knee joint by sympathetic co-transmitters | 451 |
| **B. Stankov, S. Capsoni, V. Lucini, J. Fauteck, S. Gatti, B. Gridelli, G. Biella, B. Cozzi** and **F. Fraschini** | Autoradiographic localization of putative melatonin receptors in the brains of two Old World primates: *Cercopithecus aethiops* and *Papio ursinus* | 459 |
| **A. F. Wiechmann** and **C. R. Wirsig-Wiechmann** | Distribution of melatonin receptors in the brain of the frog *Rana pipiens* as revealed by *in vitro* autoradiography | 469 |

VOLUME 52 NUMBER 3 1993

LETTER TO NEUROSCIENCE

| | | |
|---|---|---|
| **E. F. Birse, S. A. Eaton, D. E. Jane, P. L. St J. Jones, R. H. P. Porter, P. C.-K. Pook, D. C. Sunter, P. M. Udvarhelyi, B. Wharton, P. J. Roberts, T. E. Salt** and **J. C. Watkins** | Phenylglycine derivatives as new pharmacological tools for investigating the role of metabotropic glutamate receptors in the central nervous system | 481 |

RESEARCH PAPERS

| | | |
|---|---|---|
| **B. Brugg, D. Reddy** and **A. Matus** | Attenuation of microtubule-associated protein 1B expression by antisense oligodeoxynucleotides inhibits initiation of neurite outgrowth | 489 |
| **M. D. Madeira, N. Sousa, A. Cadete-Leite, A. R. Lieberman** and **M. M. Paula-Barbosa** | The supraoptic nucleus of the adult rat hypothalamus displays marked sexual dimorphism which is dependent on body weight | 497 |
| **K. Sato, H. Kiyama** and **M. Tohyama** | The differential expression patterns of messenger RNAs encoding non-*N*-methyl-D-aspartate glutamate receptor subunits (GluR1–4) in the rat brain | 515 |
| **S. Williams, P. Vachon** and **J.-C. Lacaille** | Monosynaptic GABA-mediated inhibitory postsynaptic potentials in CA1 pyramidal cells of hyperexcitable hippocampal slices from kainic acid-treated rats | 541 |
| **C. P. Taylor** and **M. L. Weber** | Effect of temperature on synaptic function after reduced oxygen and glucose in hippocampal slices | 555 |
| **J. C. Leahy, Y. Luo, C. S. Kent, K. F. Meiri** and **M. L. Vallano** | Demonstration of presynaptic protein kinase C activation following long-term potentiation in rat hippocampal slices | 563 |

| | | |
|---|---|---|
| **P. A. Lapchak, D. M. Araujo** and **F. Hefti** | Cholinergic regulation of hippocampal brain-derived neurotrophic factor mRNA expression: evidence from lesion and chronic cholinergic drug treatment studies | 575 |
| **R. Martínez-Murillo, L. Caro** and **M. Nieto-Sampedro** | Lesion-induced expression of low-affinity nerve growth factor receptor-immunoreactive protein in Purkinje cells of the adult rat | 587 |
| **R. M. Ridley, B. A. Clark, L. J. Durnford** and **H. F. Baker** | Stimulus-bound perseveration after frontal ablations in marmosets | 595 |
| **G. M. McAlonan, T. W. Robbins** and **B. J. Everitt** | Effects of medial dorsal thalamic and ventral pallidal lesions on the acquisition of a conditioned place preference: further evidence for the involvement of the ventral striatopallidal system in reward-related processes | 605 |
| **K. Muramoto, T. Ono, H. Nishijo** and **M. Fukuda** | Rat amygdaloid neuron responses during auditory discrimination | 621 |
| **M. A. Castro-Alamancos** and **J. Borrell** | Reversal of paw preference after ablation of the preferred forelimb primary motor cortex representation of the rat depends on the size of the forelimb representation | 637 |
| **P. Mathiau, D. Riche, G. Behzadi, V. Dimitriadou** and **P. Aubineau** | Absence of serotonergic innervation from raphe nuclei in rat cerebral blood vessels—I. Histological evidence | 645 |
| **P. Mathiau, A.-M. Reynier-Rebuffel, O. Issertial, J. Callebert, C. Decreme** and **P. Aubineau** | Absence of serotonergic innervation from raphe nuclei in rat cerebral blood vessels—II. Lack of tryptophan hydroxylase activity *in vitro* | 657 |
| **P. Mathiau, M. Escurat** and **P. Aubineau** | Immunohistochemical evidence for the absence of central neuron projection to pial blood vessels and dura mater | 667 |
| **J. Luthman, M. Friedemann, P. Bickford, L. Olson, B. J. Hoffer** and **G. A. Gerhardt** | *In vivo* electrochemical measurements and electrophysiological studies of rat striatum following neonatal 6-hydroxydopamine treatment | 677 |
| **F. Murakami, Y. Tada, H. Katsumaru, J. Kudo** and **S. C. Fujita** | Electron microscopic localization and expression on cultured cells of a novel surface-associated molecule in the rat central nervous system | 689 |
| **R. Ambalavanar** and **R. Morris** | An ultrastructural study of the binding of an α-D-galactose specific lectin from *Griffonia simplicifolia* to trigeminal ganglion neurons and the trigeminal nucleus caudalis in the rat | 699 |
| **J. A. Bell** | Selective blockade of spinal reflexes by ω-conotoxin in the isolated spinal cord of the neonatal rat | 711 |
| **A. O. Caggiano** and **P. C. Brunjes** | Microglia and the developing olfactory bulb | 717 |
| **E. M. Ban, L. L. Sarlième** and **F. G. Haour** | Interleukin-1 binding sites on astrocytes | 725 |
| **P. G. Green, J. Luo, P. H. Heller** and **J. D. Levine** | Neurogenic and non-neurogenic mechanisms of plasma extravasation in the rat | 735 |
| **N. Braun, Th. Schikorski** and **H. Zimmermann** | Cytoplasmic segregation and cytoskeletal organization in the electric catfish giant electromotoneuron with special reference to the axon hillock region | 745 |
| **H. Ichikawa** and **C. J. Helke** | Distribution, origin and plasticity of galanin-immunoreactivity in the rat carotid body | 757 |

BOOK REVIEW

**S. Watson** — *Intracellular Messengers*. Edited by A. A. Boulton, G. B. Baker and C. W. Taylor — 769

VOLUME 52 NUMBER 4 — 1993

**S. A. Elias, H. Yae** and **T. J. Ebner** — Optical imaging of parallel fiber activation in the rat cerebellar cortex: spatial effects of excitatory amino acids — 771

**E. Huston, G. Cullen, M. I. Sweeney, H. Pearson, M. S. Fazeli** and **A. C. Dolphin** — Pertussis toxin treatment increases glutamate release and dihydropyridine binding sites in cultured rat cerebellar granule neurons — 787

**D. Li, P. M. Field, U. Starega, Y. Li** and **G. Raisman** — Entorhinal axons project to dentate gyrus in organotypic slice co-culture — 799

**B. Heimrich** and **M. Frotscher** — Formation of the septohippocampal projection *in vitro*: an electron microscopic immunocytochemical study of cholinergic synapses — 815

**L. Acsády, K. Halasy** and **T. F. Freund** — Calretinin is present in non-pyramidal cells of the rat hippocampus—III. Their inputs from the median raphe and medial septal nuclei — 829

**J. Ułas, L. C. Brunner, L. Nguyen** and **C. W. Cotman** — Reduced density of adenosine A1 receptors and preserved coupling of adenosine A1 receptors to G proteins in Alzheimer hippocampus: a quantitative autoradiographic study — 843

**K. D. Beck, B. Knüsel** and **F. Hefti** — The nature of the trophic action of brain-derived neurotrophic factor, des(1-3)-insulin-like growth factor-1, and basic fibroblast growth factor on mesencephalic dopaminergic neurons developing in culture — 855

**E. Magal, P. Burnham, S. Varon** and **J.-C. Louis** — Convergent regulation by ciliary neurotrophic factor and dopamine of tyrosine hydroxylase expression in cultures of rat substantia nigra — 867

**D. D. Song** and **R. E. Harlan** — Ontogeny of the proenkephalin system in the rat corpus striatum: its relationship to dopaminergic innervation and transient compartmental expression — 883

**E. Fedele** and **A. C. Foster** — An evaluation of the role of extracellular amino acids in the delayed neurodegeneration induced by quinolinic acid in the rat striatum — 911

**L. D. McCullough, J. D. Sokolowski** and **J. D. Salamone** — A neurochemical and behavioral investigation of the involvement of nucleus accumbens dopamine in instrumental avoidance — 919

**U. Wagner, H.-T. Weiler** and **J. P. Huston** — Amplification of rewarding hypothalamic stimulation following a unilateral lesion in the region of the tuberomammillary nucleus — 927

**F. Gonzalez, F. Krause, R. Perez, J. M. Alonso** and **C. Acuña** — Binocular matching in monkey visual cortex: single cell responses to correlated and uncorrelated dynamic random dot stereograms — 933

**F. Licata, G. Li Volsi, G. Maugeri, L. Ciranna** and **F. Santangelo** — Serotonin-evoked modifications of the neuronal firing rate in the superior vestibular nucleus: a microiontophoretic study in the rat — 941

**C. L. Meier** and **P. L. Herrling** — *N*-Methyl-D-aspartate induces regular firing patterns in the cat lateral habenula *in vivo* — 951

| | | |
|---|---|---|
| **P. Brun, M. F. Suaud-Chagny, F. Gonon** and **M. Buda** | *In vivo* noradrenaline release evoked in the anteroventral thalamic nucleus by locus coeruleus activation: an electrochemical study | 961 |
| **D. A. Przywara, S. V. Bhave, P. S. Chowdhury, T. D. Wakade** and **A. R. Wakade** | Sites of transmitter release and relation to intracellular $Ca^{2+}$ in cultured sympathetic neurons | 973 |
| **M. Dorlöchter, S. Meurer** and **A. Wernig** | Acetylcholine receptor bars and transmitter release in frog neuromuscular junctions | 987 |
| **J. Kucera, J. M. Walro** and **Y. Gao** | Influence of muscle cell substrates on differentiation of intrafusal fiber types in neonatal rats | 1001 |
| **L. Bettendorff, B. Hennuy, P. Wins** and **E. Schoffeniels** | Thiamin and derivatives as modulators of rat brain chloride channels | 1009 |
| **H. Zhuo** and **C. J. Helke** | Neurokinin B peptide-2 neurons project from the hypothalamus to the thoracolumbar spinal cord of the rat | 1019 |
| **I. Nagy, C. A. Maggi, A. Dray, C. J. Woolf** and **L. Urban** | The role of neurokinin and *N*-methyl-D-aspartate receptors in synaptic transmission from capsaicin-sensitive primary afferents in the rat spinal cord *in vitro* | 1029 |
| **K. Yashpal, V. Radhakrishnan, T. J. Coderre** and **J. L. Henry** | CP-96,345, but not its stereoisomer, CP-96,344, blocks the nociceptive responses to intrathecally administered substance P and to noxious thermal and chemical stimuli in the rat | 1039 |
| **S. C. Ahlgren** and **J. D. Levine** | Mechanical hyperalgesia in streptozotocin-diabetic rats | 1049 |
| **T. Winkler, H. S. Sharma, E. Stålberg** and **Y. Olsson** | Indomethacin, an inhibitor of prostaglandin synthesis attenuates alteration in spinal cord evoked potentials and edema formation after trauma to the spinal cord: an experimental study in the rat | 1057 |
| **P. Giraudon, N. Dufay, H. Hardin, A. Reboul, M. Tardy** and **M. F. Belin** | Differentiation of a medulloblastoma cell line towards an astrocytic lineage using the human T lymphotropic retrovirus-1 | 1069 |